CLAIMS

1. An absorbance reading apparatus for reading the absorbance of a sample injected into each of a plurality of wells provided on a microchamber array, the apparatus comprising:

a sample base for mounting the microchamber array;

a light source;

a spectroscope on which light from the light source is incident;

an irradiation optical system for adjusting the distribution of luminance of irradiation light emerging from the spectroscope;

a field lens for enlarging the size of irradiation light transmitted by the irradiation optical system and irradiating the microchamber array mounted on the sample base with the enlarged irradiation light;

a one-side telecentric optical system for receiving sample-transmitted light; and

an imaging camera for producing image data based on the sample-transmitted light received via the one-side telecentric optical system.

2. The absorbance reading apparatus according to claim 1, further comprising a mirror for guiding the irradiation light transmitted by the irradiation optical system such that the microchamber array is irradiated in the direction from a second plane toward a first plane, or from the first plane to the second plane.

3. The absorbance reading apparatus according to claim 1 or 2, further comprising a sample recovery mechanism for recovering a sample in a well.

4. The absorbance reading apparatus according to any one of claims 1 to 3, wherein the absorbance of a well on the microchamber array is read within one minute.

5. A method of controlling an absorbance reading apparatus for reading the absorbance of a plurality of samples injected into each of a plurality of wells provided on a microchamber array, comprising the steps of:

controlling a light source for emitting irradiation light for reading absorbance;

selecting an absorbance read mode from the group consisting of a wavelength scan mode and a chronological scan mode;

controlling a spectroscope for selecting the wavelength of the irradiation light;

controlling an imaging camera for reading the absorbance of a sample; and

storing the absorbance read by the imaging camera in a database.

6. The absorbance reading apparatus control method according to claim 5, comprising the steps of:

setting an exposure time of the imaging camera for reading the absorbance of a sample;

setting a read start wavelength of the irradiation light for reading absorbance;

setting a read wavelength resolution of the irradiation light for reading absorbance;

setting a read time for reading absorbance; and

setting the number of times of reading absorbance.

7. The absorbance reading apparatus control method according to claim 5 or 6, comprising the steps of:

reading a zero-correction solvent; and

reading a tested sample.

8. The absorbance reading apparatus control method according to any one of claims 5 to 7, comprising the steps of:

specifying image data for calculating absorbance out of absorbance calculation image data read by the absorbance reading apparatus;

specifying an absorbance calculation region in the specified image data; and

calculating absorbance based on the specified absorbance calculation region.

9. The absorbance reading apparatus control method according to claim 8, wherein the step of specifying the image data for the calculation of absorbance comprises the steps of:

displaying, as the image data, an image of the microchamber array in which a zero-correction solvent is placed and an image of the microchamber array in which a tested sample is placed; and

specifying an absorbance calculation region on the image data of either the zero-correction solvent or the tested sample.

10. The absorbance reading apparatus control method according to any one of claims 5 to 9, comprising an optical path length correction step of correcting differences in the optical path length on the tested sample, the differences dependent on the absorbance reading apparatus.

11. The absorbance reading apparatus control method according to any one of claims 5 to 10, comprising the step of recovering a tested sample in a desired well.

12. An absorbance calculation program for carrying out the steps in any one of

claims 5 to 11.

13. A microchamber array for use in an absorbance reading apparatus, wherein each well is not less than 0.03 mm and not more than 1 mm in length and not less than 0.03 mm and not more than 1 mm in width.

14. The microchamber array according to claim 13, wherein the distance between adjacent wells is not less than 0.03 mm and not more than 1 mm.

15. The microchamber array according to claim 13 or 14, comprising not less than 100 and not more than 10000 wells.